



United States Department of Agriculture  
Natural Resources Conservation Service



NEW JERSEY  
AUDUBON  
SOCIETY

## New Jersey Fact Sheet: White-tailed Deer Impacts and Forest Management

### Introduction

The white-tailed deer (*Odocoileus virginianus*) is a large native mammal that occupies most of North America and has a range extending throughout New Jersey. This species uses a wide variety of habitats, including forests, open grasslands, agricultural fields, wetlands and suburban land. Deer feed primarily on grasses, herbaceous plants, and fruits while providing food for large predators, such as gray wolves, cougars, bobcats, and coyotes. These animals are active year-round, and in late summer through winter they become more opportunistic, feeding on acorns, woody vegetation, and agricultural crops.

After European settlement, unregulated harvest of deer led to a significant decrease in the species, but many environmental and social changes have since led to a population explosion. In the early 1900s, strict regulatory action was implemented in many eastern states in an effort to increase the deer population. This effort was highly successful, but as the population recovered, large predators, such as the eastern cougar, were hunted in many areas to local extinction. Without pressures from predation, white-tailed deer flourished. In New Jersey large forest tracts have been fragmented and cleared for development, creating more open “edge” habitat, which provides valuable resources to white-tailed deer. These changes, along with a high reproductive rate, have caused the white-tailed deer population in New Jersey to reach numbers far above those of pre-settlement times. As of 2010, white-tailed deer in New Jersey numbered an estimated 111,250 individuals, with some areas having a density as high as



Male white-tailed deer (US Fish and Wildlife Service, 2008)

114 deer per square mile. At this density, white-tailed deer negatively impact forest health, ecosystem balance, human activity, and the health of local deer populations.

### Impacts of Deer Overpopulation

White-tailed deer can have significant effects on forest health, species composition, and economic development. Because deer are herbivores, they dedicate a considerable amount of time to foraging, which can lead to several negative impacts when the population is unbalanced:

#### Ecological Impacts

- Deer may browse herbaceous plants, shrubs, and seedlings, lowering local abundance of these plants.
- Browsing impairs plant regeneration and natural succession.
- Heavy browsing reduces the height, density, and diversity of the forest understory and midstory, lowering habitat value for other animals.
- Deer tend to avoid particular plants, such as some ferns, Japanese barberry, and white snakeroot. This leads to a shift in plant composition, often dominated by non-native plants.
- Deer may transport seeds from invasive and non-native plants by consuming and excreting the seeds, or

### Signs

There are several signs a landowner can look for in order to determine if a forest stand has excessive browse. Typically, these indicators will be addressed in a Forest Stewardship Plan prepared by a professional forester.



The area up to the browse line, 5 feet above the ground, lacks vegetation and structure (National Parks Service, 2010)



Species that are unpalatable to deer, such as hay-scented fern, dominate the ground (USDA Forest Service, 2010)



Chew marks are evident on individual plants (USDA Forest Service)

by distributing seeds that have attached to the animal's fur.

### **Economic Impacts**

- Deer may heavily browse agricultural crops, especially when competition for food is high.
- In suburban areas, deer often browse ornamental landscape plants, especially when competition for food is high.

### **Management Options**

Many options are available to help reduce the effects of browsing on forest health.

- **Deer Exclusion:** A fenced-in area approximately 10 feet tall that is designed to keep deer from foraging.
- **Seedling Protection:** Individual seedlings can be protected using plastic or fine mesh tubes or wire cages.
- **Chemical Deer Repellents:** Deer may avoid plants sprayed with commercial deer repellents, most often chemical mixtures that smell of sulfur or decaying animal matter.
- **Hunting:** When managed properly, hunting is the most effective means of controlling white-tailed deer populations.

Although they can effectively control herbivory damage, deer exclosures, seedling protection, and chemical repellents do not control the population and they require periodic maintenance. Fences can be expensive to install and may be difficult to construct on uneven terrain. Chemical repellents also become less effective after time, so reapplication is necessary.

### **Technical and Financial Assistance**

A Forest Stewardship Plan will usually present the best options for deer management based on the landowner's goals and the current site conditions. The landowner is generally responsible for the cost of development and implementation of a Forest Stewardship Plan. However, qualifying landowners in New Jersey have several options for obtaining technical and financial assistance for deer management.

The Natural Resources Conservation Service (NRCS) offers technical and financial assistance to forest

landowners through the Environmental Quality Incentives Program (EQIP). Eligible landowners with 10 acres of land may receive cost-share assistance for the development of a Forest Stewardship Plan, or for costs related to invasive plant removal, seedling protection, and fencing when part of an approved Forest Stewardship Plan. Forest Stewardship Plans cost-shared through EQIP must be prepared by an NRCS approved Technical Service Provider (TSP). A list of TSPs can be found at a local NRCS service center or on the New Jersey NRCS website.

For landowners interested in the use of regulated hunts, the New Jersey Division of Fish and Wildlife (NJDFW) offers the Deer Management Assistance Program (DMAP) which provides assistance with an overabundance of white-tailed deer. Through DMAP, a landowner can participate by allowing approved hunters to access and hunt their property. Approved hunters have acquired special permits that allow them to harvest additional antlerless deer in specified zones during the appropriate hunting season. More information is available on the DFW website.

**NRCS office locations and more detailed information about NRCS assistance and the EQIP program can be found at: [www.nj.nrcs.usda.gov/](http://www.nj.nrcs.usda.gov/)**

### **For More Information:**

#### **General Information on NRCS Forestry Programs**

[www.nj.nrcs.usda.gov/technical/forestry/index.html](http://www.nj.nrcs.usda.gov/technical/forestry/index.html)

#### **Information on NRCS EQIP Program**

[www.nj.nrcs.usda.gov/programs/eqip/documents/EQIPForestryFactSheet08FB.pdf](http://www.nj.nrcs.usda.gov/programs/eqip/documents/EQIPForestryFactSheet08FB.pdf)

#### **Locating an NRCS TSP**

<http://techreg.usda.gov/CustLocateTSP.aspx>

#### **General Information on Deer in NJ**

<http://state.nj.us/dep/fgw/deer.htm>

#### **Information on NJ Fish and Wildlife's DMAP**

[www.state.nj.us/dep/fgw/dmap.htm](http://www.state.nj.us/dep/fgw/dmap.htm)

#### **List of NJDEP-Approved Consulting Foresters**

[www.state.nj.us/dep/parksandforests/forest/ACF.pdf](http://www.state.nj.us/dep/parksandforests/forest/ACF.pdf)



Plastic tubes protect new seedlings from deer browse (John Parke, NJA)

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